

**Notice of Allowability**

Application No.

10/534,301

Examiner

Bernard E. Souw

Applicant(s)

ROSSIER ET AL.

Art Unit

2881

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 5/9/2005 (Transmittal).
2. ☒ The allowed claim(s) is/are 1, 2, 42, 43 and 57-80.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☒ All    b) ☐ Some\*    c) ☐ None    of the:
    1. ☒ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
  5. ☐ CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
    - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached
      - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
    - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO/SB/08),  
Paper No./Mail Date 6/1/06 + 3/10/06
4. ☐ Examiner's Comment Regarding Requirement for Deposit  
of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413),  
Paper No./Mail Date \_\_\_\_\_.
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_.

## **DETAILED ACTION**

### ***Priority***

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), (GB 0226160.0), filed 11/08/2002, which papers have been placed of record in the file.
2. Receipt is acknowledged of papers submitted under 35 U.S.C. 371 (PCT/EP2003/013328) which papers have been placed of record in the file.

### ***Information Disclosure Statement***

3. Receipt is acknowledged of information disclosure statements (IDS) submitted on 06/01/2006 and 03/10/2006. The submission is in compliance with the provisions of 37 CFR 1.97.

Signed copies of the information disclosure statements are here enclosed.

### ***Preliminary Amendment***

4. The Preliminary Amendment filed 05/09/2005 has been entered.

The present Office Action is made with all the suggested amendments being fully considered.

Claims 3-41, 44-56 have been cancelled.

New claims 57-80 have been added.

Pending in this Office Action are claims 1, 2, 42, 43 and 57-80.

### **ALLOWANCE**

5. Claims 1, 2, 42, 43 and 57-80 are allowed.

The claims are subsequently renumbered to claims 1-28.

### ***Reasons for Allowance***

6. An apparatus or method for dispensing a sample for analysis by electrospray ionization mass spectrometry, comprising a substrate of electrically insulating material, the substrate comprising at least two covered microstructures both having an outlet at the edge of the substrate where the electrospray is to be generated by application of a voltage and an inlet for fluid introduction, one of the microstructures containing a sample solution to be sprayed, while at least one other of the microstructures containing a sheath liquid or a sheath gas, such that the sample solution and the sheath liquid/gas are directly mixed in the Taylor cone of the spray, as recited in independent claim(s) 1, 42, 67 and 79, is neither anticipated nor rendered obvious by any prior art.

7. Claims 2, 43, 57-66, 68-78 and 80 are also allowed because of their dependencies, either directly or indirectly, upon claims 1, 42, 67 or 79.

8. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably

accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

***Relevant Prior Art***

9. This prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

(a) USPAT 7,105,812 and USPGPub 2005/0047969, both issued to Zhao et al.; USPAT 6,803,568 and USPGPub 2004/0113068 both issued to Bousse et al.; all four references disclose an apparatus or method for dispensing a sample for analysis by electrospray ionization mass spectrometry, comprising a substrate of electrically insulating material, the substrate comprising a plurality of microstructures having an outlet at the edge of the substrate where the electrospray is to be generated by application of a voltage and an inlet for fluid introduction, one of the microstructures containing a sample solution to be sprayed, while at least one other of the microstructures containing a sheath liquid or a sheath gas, such that the sample solution and the sheath liquid/gas are directly mixed in the Taylor cone of the spray, just as recited in independent claim(s) 1, 42, 67 and 79.

However, all four references are predated by the present priority date (11/08/2002).

(b) USPGPub 2003/0196895 issued to Neususs et al. discloses an electrospray for mass spectrometry a plurality of microchannels in a coaxial/concentric arrangement,

the central channel containing a sample solution to be sprayed, while at least one of the others containing a sheath liquid or a sheath gas, such that the sample solution and the sheath liquid/gas are directly mixed in the Taylor cone of the spray, just as recited in independent claim(s) 1, 42, 67 and 79.

However, all four references are predated by the present priority date (11/08/2002).

(c) USPAT 6,918,309 issued to Brock et al. discloses an electrospray for mass spectrometry two microchannels, one channel containing a sample solution to be sprayed, and the other channel containing a sheath liquid or a sheath gas, such that the sample solution and the sheath liquid/gas are directly mixed in the common outlet of the spray, as recited in independent claim(s) 1, 42, 67 and 79. However, Brock's microchannels are arranged in a coaxial/concentric arrangement.

It is non-obvious to one of ordinary skill in the art to modify Brock's coaxial microchannels into at least two covered microstructures both having an outlet at the edge of the substrate to directly mix the sample solution and the sheath liquid/gas in the Taylor cone of the spray, as recited in independent claim(s) 1, 42, 67 and 79.

(d) USPGPub 2004/0075050; USPAT 7,098,450, and WO 02/080222 A1, all three references issued to Rossier et al., disclose an apparatus or method for dispensing a sample for analysis by electrospray ionization mass spectrometry, comprising a substrate of electrically insulating material, the substrate comprising one covered microchannel having an outlet at the edge of the substrate where the electrospray is to

be generated by application of a voltage. However, USPGPub 2004/0075050 and USPAT 7,098,450 are both predated by the present priority date (11/08/2002); but most importantly, none of the three references recites more than one single microchannel.

It is non-obvious to one of ordinary skill in the art to modify the single channel microchannel having a single spray outlet into two or more covered microstructures all having an outlet at the edge of the substrate to directly mix the sample solution and the sheath liquid/gas in the Taylor cone of the spray, as recited in independent claim(s) 1, 42, 67 and 79.

### ***Communications***

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bernard E Souw, Ph.D., whose telephone number is 571 272 2482. The examiner can normally be reached on Monday thru Friday, 9:00 am to 5:00 pm..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim can be reached on 571 272 2293. The central fax phone number for the organization where this application or proceeding is assigned is 571 273 8300 for regular communications as well as for After Final communications.


Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 571 272 5993.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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June 20, 2007



**ROBERT KIM**  
PATENT EXAMINER